

**REMARKS**

Applicants appreciate the Examiner's thorough review of the present application, and respectfully request reconsideration in light of the preceding amendments and the following remarks.

Claims 1, 2, 5 and 15-17 are pending in the application. Claim 1 has been amended to further define the claimed invention over the applied art of record. Amended claim 1 finds solid support in the original specification, e.g., at page 10, lines 9-14. New claims 15-17 readable on the elected invention/species have been added to provide Applicants with the scope of protection to which they are believed entitled. No new matter has been introduced through the foregoing amendments.

The 35 U.S.C. 103(a) rejection manifested in the Final Office Action is traversed for the reasons presented in the Request for Reconsideration mailed June 8, 2006, which are incorporated by reference herein.

Solely for the purpose of expediting prosecution, Applicants have further amended claim 1 to specifically define the claimed invention over the applied art of record.

In particular, amended claim 1 now recites a GaN-based semiconductor light emitting diode, comprising, among other things, an upper clad layer formed on the active layer and made of a GaN semiconductor material doped with a p-type dopant; and an alloy layer which is formed on the upper clad layer to (i) directly contact a surface of the upper clad layer, (ii) consists essentially of Zn and Ni, and (iii) absorbs hydrogen existing on the surface of said upper clad layer to prevent the p-type dopant from combining with said hydrogen.

According to the Examiner, *Hiraoka* discloses a p-side electrode that is made of AuZnNi alloy. However, the p-side electrode disclosed by *Hiraoka* does not consist essentially of Zn and Ni, as presently claimed. Rather, the *Hiraoka* p-side electrode is made of Au/Zn-Ni-Au. *See*

*Hiraoka* at paragraph [0007], lines 16-17. Thus, *Hiraoka* fails to teach or suggest limitation (ii).

Further, a person of ordinary skill in the art would understand that, in the related art, "/" denotes a division of adjacent layers, and "-" indicates ingredients of an alloy. Thus, the p-side electrode of *Hiraoka* comprises two separate layers, i.e., an Au layer and a Zn-Ni-Au layer. The person of ordinary skill in the art would further recognize that since the *Hiraoka* p-side electrode forms an ohmic electrode (*Hiraoka* at paragraph [0007], the last line), the Au layer must contact and, hence, be disposed on the p-type GaAs layer of *Hiraoka*. Therefore, the layer that is in direct contact with the p-type GaAs layer of *Hiraoka* is an Au layer, rather than a ZnNi alloy layer as presently claimed. Thus, *Hiraoka* fails to teach or suggest limitation (i).

Finally, the p-type GaAs layer of *Hiraoka* contains Zn as dopant, and hydrogen gas is not used in the process of GaAs growth. Therefore, *Hiraoka* does not need/disclose a hydrogen-storing alloy, and the reference's Zn-Ni-Au alloy cannot function as a hydrogen-storing alloy, unlike the claimed alloy layer. It should be further noted that, since the *Hiraoka* Zn-Ni-Au alloy is not in direct contact with the upper claimed layer, it cannot absorb hydrogen existing on the surface of the upper clad layer in the presently claimed manner. Therefore, *Hiraoka* fails to teach or suggest limitation (iii).

For any of the reasons advanced above, Applicants respectfully submit that independent claim 1 is patentable over *Hata* and *Hiraoka*, and request that the obviousness rejection of claim 1 be withdrawn.

Claims 2 and 5 depend from claim 1, and are considered patentable at least for the reasons advanced with respect to claim 1.

New independent claim 15 includes limitations similar to limitations (i)-(iii) of amended claim 1 and is believed patentable at least for the reasons advanced with respect to claim 1. Claims 16-17 depend from claim 15, and are considered patentable at least for the reasons advanced with

respect to claim 15.

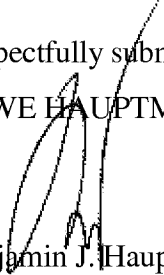
Accordingly, all claims in the present application are now in condition for allowance. Early and favorable indication of allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under *37 C.F.R. 1.136* is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

LOWE HAUPTMAN & BERNER, LLP



Benjamin J. Hauptman  
Registration No. 29,310

USPTO Customer No. 22429  
1700 Diagonal Road, Suite 310  
Alexandria, VA 22314  
(703) 684-1111  
(703) 518-5499 Facsimile  
Date: July 10, 2006  
BJH/KL/ayw